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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,393	06/28/2004	Yukinori Sasaki	MAT-8559US	4460
23122	7590	11/23/2007		
RATNERPRESTIA			EXAMINER	
P O BOX 980			BUDD, MARK OSBORNE	
VALLEY FORGE, PA 19482-0980				
			ART UNIT	PAPER NUMBER
			2834	
			MAIL DATE	DELIVERY MODE
			11/23/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

711

<b>Office Action Summary</b>	<b>Application No.</b> 10/500,393	<b>Applicant(s)</b> SASAKI, YUKINORI	
	<b>Examiner</b> Mark Budd	<b>Art Unit</b> 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7,9,10 and 12-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9, 10 and 12-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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Claims 1-7, 9, 10 and 12-14 are rejected under 35 USC 103 (a) as being on patentable over Suzuki (807) in view of Shibata. Suzuki (807) teaches a piezoelectric plate polarized in a thickness direction with electrodes on each surface as well as a dielectric film on each surface. Suzuki does not teach providing "the range of the ratio of the sum of the thickness of the first dielectric film and the second dielectric film to the thickness of a piezoelectric plate is between 0.7 and 2.0 inclusive", nor does Suzuki mention providing plural resonator's in the form of a ladder filter. However, Shibata discloses a piezoelectric resonator plate operating in a thickest longitudinal mode which provides thickness ratios within the claimed range. (See column 7, line 54 [ratio = 1.89] and column 14, line 64-67 [ratio= 1.22]. Shibata also explicitly states that various, known filter configurations can be provided including a ladder filter (column 15, lines 5-9). Since Shibata teaches the ratio to be a result oriented variable, and optimization of a known structure for a particular application has long been held to be within the skill expected of the routineer, it would have been obvious to one of ordinary skill in the art to provide Suzuki with thickness ratios within the claimed range.

In regard to: applicant's arguments, applicant is correct that the description on column 12 of Shibata teaches a ratio ( $t_s/t_r$ ) of only .55. However, the examiner disagrees with applicant in regard to the disclosure of Shibata in column 7. The examiner believes that it is the thickness of only top silicon dioxide film #14 when referring to the thickness ratio. Therefore the ratio of the zinc  $\square$  to the total sickness of both the top silicon dioxide later #14 and the bottom silicon dioxide layer (the diaphragm) would be greater

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than 1.0. At the bottom of column 14, Shibata discloses that the thickness of the zinc oxide film is about 45% of the total thickness of the resonator section (total thickness = piezoelectric element, two electrodes, two dielectric films). Thus the ratio of the two dielectric films (approximately 55% of the total thickness) to the piezoelectric element thickness would be greater than 1.0. Figures 24, 25, 30, 31 and 33-35 of Shibatta teach the upper and lower dielectric layers having the same geometric shape.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Budd whose telephone number is 571-272-2019. The examiner can normally be reached on Monday-Thursday from 6 a.m. to 4 p.m.

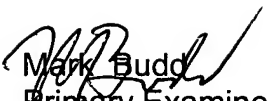
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg, can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Mark Budd  
Primary Examiner  
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